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Whirlwinds.

IT was my fortune a few days since to see a small whirlwind at the distance of but a few rods. The wind at the time was from the west, and was cold, and somewhat gusty and variable. The whirl persisted for several minutes, dying down and increasing again. Its direction of rotation was from right to left. As it passed across a road, the dust was lifted to a height of about thirty feet, forming a pillar, which disappeared when the grass at the roadside was reached. The query that arose in my mind was as to the nature of the currents which produced this upward movement of the dust. Such movement has commonly been ascribed to the suction effect of an indraught towards the whirl which has been supposed to exist. But as the breeze continued to rise, I could not help but notice that dust was lifted equally high by the chilly wind at points where there was no evidence whatever of a whirl. Such lifting by a cold wind blowing straight along certainly could not have been due to an upward current produced by an indraught. Indeed, this lifting resembles precisely the movements of sand at the bottom of a stream beneath eddies formed by the varying force of the current, a phenomenon readily observed in clear water.

M. A. VEEDER.

Lyons, N.Y., April 23.

Effigy Mound in the Valley of the Big Sioux River, Iowa.

WHILE at Sioux Falls, S. Dak., in the latter part of last July, I took the opportunity to look up and survey a group of mounds and a fort that are located about sixteen miles south-east of that city, in the valley of the Big Sioux River. In 1885, I was informed by an engineer, that, in running a preliminary line for a railroad a few years previous, he had passed through a group of mounds in that locality, and that there was a large fort just south of them.

The group in question is in the western part of Lyon County, Io., a mile and a half west of Granite Station, on the Sioux Falls branch of the Burlington, Cedar Rapids, and Northern Railroad. The country bordering the river here is more or less rolling and broken, especially on the western side. On the east side, at the Burlington crossing, there is a plateau which is from twenty-five to fifty feet in height above the river, and slopes to the southward. Bloody Run flows around the north end, and empties into the river near by.

On this plateau, to the north of the railroad, there are a hundred and five mounds, ranging from a foot to five feet and a half in height. Nearly all of them are common round burial-mounds; but among them are a few that are elliptical in shape, and there is also one animal effigy. The latter is $55\frac{1}{2}$ feet in greatest length, and the body is $2\frac{1}{2}$ feet in height. While apparently rude in design, the outline on the ground is regular, and the surface of the mound is smooth and symmetrical. There are many imitative mounds in the effigy region of Wisconsin that are no better in outline than this one. The peculiarity of this effigy consists in its isolated position, there being no others known to exist in the intermediate space between it and those to the eastward in the Mississippi valley, a distance of fully 270 miles. It is also the first mound of this class discovered within the limits of the Missouri River basin; and its position, therefore, is analogous to those of Ohio and Kentucky, yet the isolation is not so great.

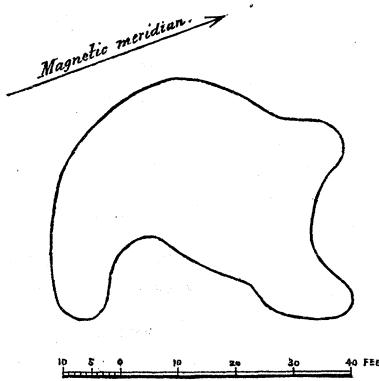
There is no system in the arrangement of the mounds, they being located in a haphazard way, here and there, as fancy dictated. Scattered among them, principally near the centre of the group, are a large number of that kind of stone monuments which, in a published article on the subject, I have called "boulder outlines." Some of these extend up on the sides of the mounds, and in one case one of the larger mounds is surrounded by a circle of boulders. These instances denote a later occupancy, or at least that they were placed there after the mounds were constructed.

Just south of this group, on the south side of the railroad-track which separates them, there is a large fort or enclosure, of an irregular elliptical shape, which is the largest one known to exist north-west of Ohio, except "Aztalan," Wisconsin. Its inside

area is about fifteen acres, and the walls at the present time are from one to two feet in height, with an average width of eighteen feet. They were probably palisaded when in use. This fort was also built after the mounds were constructed, for at one point the wall intersects a mound which is three feet and a half in height. That the mound was built first, is evident from the fact that the wall was raised in height at the junction, in order to surmount and pass over it without abruptness. Within and around the fort there are seven mounds, and between the fort and the railroad there were several others which have been destroyed by cultivation.

There is plenty of evidence to show that the plateau was occupied as a place of residence at some period in the past. Burned stone and chert flakes are especially numerous, while occasionally stone axes, celts, grooved hammers, arrow-heads, and ornaments of stone and copper, are found. Fragments of steatite vessels and pottery composed of shell and clay, and pulverized stone and clay, are also quite plentiful. Occasionally ornaments, beads, and tubes made of sea-shells have been found in some of the mounds in this and other groups in the vicinity.

This locality was visited in November, 1886, by Professor Frederick Starr of Cedar Rapids, Io., on which occasion he excavated four mounds, two of which were situated on the south side of the railroad track. He described their contents in the *American Antiquarian* for November, 1887 (vol. ix.). In his article he mentioned the existence of the "stone circles," but no reference was



made to the fort or the effigy. The mounds in which his excavations were made were within three hundred feet of the north-east wall of the enclosure, which was certainly in plain view; and it is strange that it should have been overlooked by him.

It is evident that this point was at one time a site of the mound-builders, and that later they were compelled to fortify themselves against some hostile neighbor. The large amount of village *débris* scattered over the plateau, the great number of burial-mounds in that vicinity, together with the size of the fort, indicate also that the inhabitants were quite numerous.

T. H. LEWIS.

St. Paul, Minn., April 23.

Gorse or Furze.

THE following is a copy of an extract from a letter from the United States commissioner of agriculture, dated March 28, 1890, acknowledging the receipt of a specimen of gorse or furze discovered by me growing near Hampton, Va., and stating that, as far as that department is aware, this is the first instance known of its presence in this country: "Your note of the 26th inst., and the small box of specimens of the European furze (*Ulex Europaeus*), received. This plant was probably introduced into the grounds of the Fort [Fort Monroe, Va.] many years ago, and does not seem likely to spread so as to become particularly obnoxious to agriculture. I am not aware that it has been observed in any other part of this country in a wild state."

I should be glad to know whether it has ever been seen in the United States before.

J. R. McGINNIS.

Fort Monroe, Va., April 23.